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The U.S. has established a rudimentary Ballistic Missile Defense System capable of destroying long-range rogue nation ballistic missile threats. However, the primary nations of interest, North Korea and Iran, have not yet demonstrated a missile that is capable of reaching the U.S. This paper argues that the greater threat to the U.S. is in the form of short and medium-range ballistic missiles that can be fired at deployed U.S. forces and the operational commander's inability to effectively counter this threat. Two hypothetical scenarios are used to illustrate that U.S. weaknesses exist in the lack of sufficient defensive capability to counter the threat, and in an insufficient command and control structure. This paper advocates a shift of ballistic missile defense focus from the established homeland defense to protection of deployed forces, allies and friends of the U.S. This can be accomplished through accelerated development and deployment of theater defensive systems, and the establishment of theater missile defense commanders who will support U.S. national missile defense in a building block approach.

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THEATER BALLISTIC MISSILE DEFENSE NEEDS COMMAND AND CONTROL, IT NEEDS ASSETS, AND IT NEEDS IT ALL TODAY

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations. This paper is concurrently submitted in partial satisfaction of the requirements of elective course FE 520, Ballistic Missile Defense.

The contents of this paper reflect my own personal views and not necessarily endorsed by the Naval War College or the Department of the Navy.

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ABSTRACT

The U.S. has established a rudimentary Ballistic Missile Defense System capable of destroying long-range rogue nation ballistic missile threats. However, the primary nations of interest, North Korea and Iran, have not yet demonstrated a missile that is capable of reaching the U.S. This paper argues that the greater threat to the U.S. is in the form of short and medium-range ballistic missiles that can be fired at deployed U.S. forces and the operational commander's inability to effectively counter this threat. Two hypothetical scenarios are used to illustrate that U.S. weaknesses exist in the lack of sufficient defensive capability to counter the threat, and in an insufficient command and control structure. This paper advocates a shift of ballistic missile defense focus from the established homeland defense to protection of deployed forces, allies and friends of the U.S. This can be accomplished through accelerated development and deployment of theater defensive systems, and the establishment of theater missile defense commanders who will support U.S. national missile defense in a building block approach.

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INTRODUCTION

Ballistic missile defense (BMD) is a constantly evolving yet critical capability in today's uncertain global environment. The United States has established and is continually improving a Ballistic Missile Defense System (BMDS) capable of defending the U.S. against potential, yet currently non-operational threats from North Korea and Iran. This paper argues that more urgent problems lie in the immediate threat of short and medium-range missile attacks on forward-deployed U.S. military forces, and the operational commander's inability to effectively counter the threat. This inability is driven by lack of sufficient defensive capabilities to physically counter the attacks, as well as a command and control (C2) structure that is not clearly defined for threats to regions outside the continental U.S.

Designed not to counter a massive Cold War-era Soviet strike, the U.S. BMDS is designed to "deter and protect the United States from missile attacks by rogue states armed with WMD."[1] Primarily focused on the so called axis of evil powers of North Korea and Iran, a BMDS limited defensive capability is available for operations while ongoing or spiral development of the system enhances robustness and adds capability. However, is the rogue nation threat to the U.S. greater from a small-scale, long-range ballistic missile attack (armed with weapons of mass destruction), or a large-scale conventional attack with short and medium-range ballistic missiles on forward deployed forces? If one acknowledges that neither North Korea nor Iran has successfully tested a missile with sufficient range to reach the continental U.S., and both countries maintain large numbers of short and medium-range ballistic missiles, then it can be argued that the Missile Defense Agency (MDA) needs to shift its focus from the homeland defense portion of the mission to defending deployed

[1] U.S. President, *The National Security Strategy of the United States of America*, (Washington, DC: White House, 2006), 18.

forces, allies, and friends of the U.S. Failure to do so puts countless American lives at risk and will continue to strain U.S. relations with allies and friends.

Achieving an operational BMDS, even at the rudimentary level, is a crowning technological achievement and an equally formidable deterrent to would-be aggressors. This paper will provide a brief background on how the U.S. arrived at the current BMDS, an overview of ballistic missile basics, and the elements of the BMDS. Next it will illustrate the challenges of theater level BMD, and the urgent problems these challenges represent in two hypothetical scenarios. It is from these scenarios that the limitations of the system, from both a defensive capability perspective and operational C2, will be analyzed.

BACKGROUND

ABM Treaty

In order to advocate the importance of BMD at the operational level, one must review the principle policy document that governed BMD system development for nearly 30 years, the Anti-Ballistic Missile (ABM) treaty. In 1972, the U.S. entered into an ABM System limitation treaty with the Soviet Union. The treaty restricted each country to the deployment of two ABM systems for the purpose of protecting offensive nuclear missile sites and defending respective capital cities. Most notably, the treaty did not allow for nationwide ABM defense and was intended to guarantee both U.S. and Soviet retaliatory missile force second strikes would remain unchallenged.[2]

In the 29 years following the treaty signing, the U.S. perspective on missile defense was re-shaped by significant world events including the end of the Cold War and collapse of the Soviet Union, the rise of global terrorism, the proliferation of ballistic missiles and WMD,

[2] "Treaty Between the United States of American and the Union of Soviet Socialist Republics on the Limitation of Anti-Ballistic Missile Systems," 26 May 1972, http://www.state.gov/www/global/arms/treaties/abmpage.html/ (accessed 01 October 2007).

and the September 11, 2001 attacks. In December 2001, President George W. Bush announced U.S. abrogation of the nearly 30-year-old treaty. He cited the treaty "…hinders our government's ability to develop ways to protect our people from future terrorists or rogue state missile attacks."[3]

U.S. withdrawal from the ABM treaty put the organization responsible for BMD in the spotlight. Then known as the Ballistic Missile Defense Organization, it is now known as Missile Defense Agency. MDA evolved from a group of Army staff planners who first identified the need for a ballistic missile defense system as early as 1944, following the first V-2 attack by Germany against Great Britain.[4] MDA's mission is to, "Develop an integrated, layered BMDS to defend the United States, its deployed forces, allies, and friends from ballistic missiles of all ranges and in all phases of flight."[5] On 1 October 2004, in satisfaction of National Security Presidential Directive (NSPD) 23, National Policy on Ballistic Missile Defense,[6] the U.S. achieved an operational national BMDS with limited defensive capability against long-range ballistic missiles.[7]

Proliferation

The U.S. established a BMDS due, in part, to the increasing threat of ballistic missiles. Worldwide proliferation of ballistic missiles has increased significantly in the last 20 years. More than 20 nations either have intercontinental ballistic missiles or are interested in

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[3] George W. Bush, President's Remarks Concerning National Missile Defense, 13 December 2001, http://www.whitehouse.gov/news/releases/2001/12/20011228-1.a.ram/ (accessed 02 October 2007).

[4] Lawrence M. Kaplan, "Missile Defense: The First Sixty Years," *MDA.mil*, 27 September 2006, 1, http://www.mda.mil/mdalink/pdf/first60.pdf/ (accessed 10 September 2007).

[5] Missile Defense Agency, "Global Ballistic Missile Defense: A Layered Integrated Defense," BMDS Booklet, 4th ed. (Washington DC), 4, http://www.mda.mil/mdalink/pdf/bmdsbook.pdf/ (accessed 10 September 2007).

[6] *National Policy on Ballistic Missiles Defense, National Security Presidential Directive/NSPD-23* (16 December 2002), http://www.fas.org/irp/offdics/nspd/nspd-23.htm/ (accessed 14 September 2007).

[7] Kaplan, "Missile Defense: The First Sixty Years," 17.

acquiring them.[8] In 2006, there were approximately 100 foreign ballistic missile launches. The rate of firings in 2007 has the potential to double that of 2006.[9] Why is proliferation expanding at such a high rate? Because the missiles are readily available on the international arms market, and they are relatively inexpensive when compared to manned systems. Ballistic missiles have become an attractive option for countries seeking regional or international power and, combined with WMD, have the potential to upset the traditional balance of power. However, the vast majority of proliferation is not a strategic problem with intercontinental ballistic missiles capable of reaching the U.S., but an operational problem with short, medium, and intermediate-range missiles capable of threatening deployed forces.

Ballistic Missile Basics

This paper will discuss different classes of ballistic missiles as well as the different phases of flight. A list of ballistic missile class characteristics is included in Table 1. A ballistic

Ballistic Missile Category	**Maximum Range**
Short-range ballistic missile (SRBM)	<1,000 km (621 miles)
Medium-range ballistic missile (MRBM)	1,000-3,000 km (621-1,864 miles)
Intermediate-range ballistic missile (IRBM)	3,000-5,500 km (1,864-3,418 miles)
Intercontinental ballistic missile (ICBM)	>5,500 km (3,418 miles)

Table 1. Ballistic Missile Characteristics[10]

missile's flight trajectory consists of three phases: boost, mid-course, and terminal. The boost phase is that time from launch until the missile stops accelerating under its own power.

[8] Fred W. Baker III, "Alaska Guardsmen Serve on the Front Line of U.S. Missile Defense," *US Fed News Service, Including US State News*, 24 August 2007, http://proquest.umi.com/ (accessed 05 September 2007).

[9] Henry A. Obering, "Testimony," House, Hearing before the Strategic Forces Subcommittee, House Armed Services Committee, 27 March 2007.

[10] National Air Intelligence Center, "Ballistic and Cruise Missile Threat: Ballistic Missile Characteristics," September 2000, http://www.mda.mil/mdalink/bcmt.bcmt.html/ (accessed 05 September 2007).

Boost generally lasts around three to five minutes and ends at altitudes of 300 miles or less.[11] Mid-course follows boost and is the longest phase of a missile's flight. At this point, the missile's engine has stopped providing thrust and the missile's flight path is mathematically predictable as it slowly freefalls through the exo-atmosphere. Mid-course can be a very short period of time for an SRBM, and can last more than 20 minutes for an ICBM.[12] The terminal phase follows mid-course and begins when the missile or warhead reenters the earth's atmosphere. Terminal phase is normally measured in seconds and presents a limited engagement window from a defensive perspective.[13]

BMDS Elements

The U.S. currently has the ability to intercept ballistic missiles in the mid-course and terminal phases of flight. Mid-course defense includes Aegis BMD from Ticonderoga-Class Cruisers and Arleigh Burke-Class Destroyers using the SM-3 missile. There are currently three cruisers and four destroyers with engagement capability.[14] The second mid-course defense element is Ground-based Missile Defense (GMD) using the Ground Based Interceptor (GBI) missiles. GBIs are located at Fort Greely, Alaska and at Vandenburg Air Force Base in California. There will be 24 GBIs in place by the end of 2007.[15]

Terminal phase defense consists of the Patriot Advanced Capability-3 (PAC 3) missile system. Figure 1 shows both sensors and defense systems that comprise the BMDS. The systems listed in the figure that are not mentioned above, are under development and non-

[11] Missile Defense Agency, "BMD Basics," http://www.mda.mil/mdalink/html/basics.html/ (accessed 28 September 2007).
[12] Ibid.
[13] Ibid.
[14] Obering, "Testimony."
[15] Obering, "Testimony."

operational. The U.S. BMDS does not yet have the ability to engage missiles during the boost phase of flight.

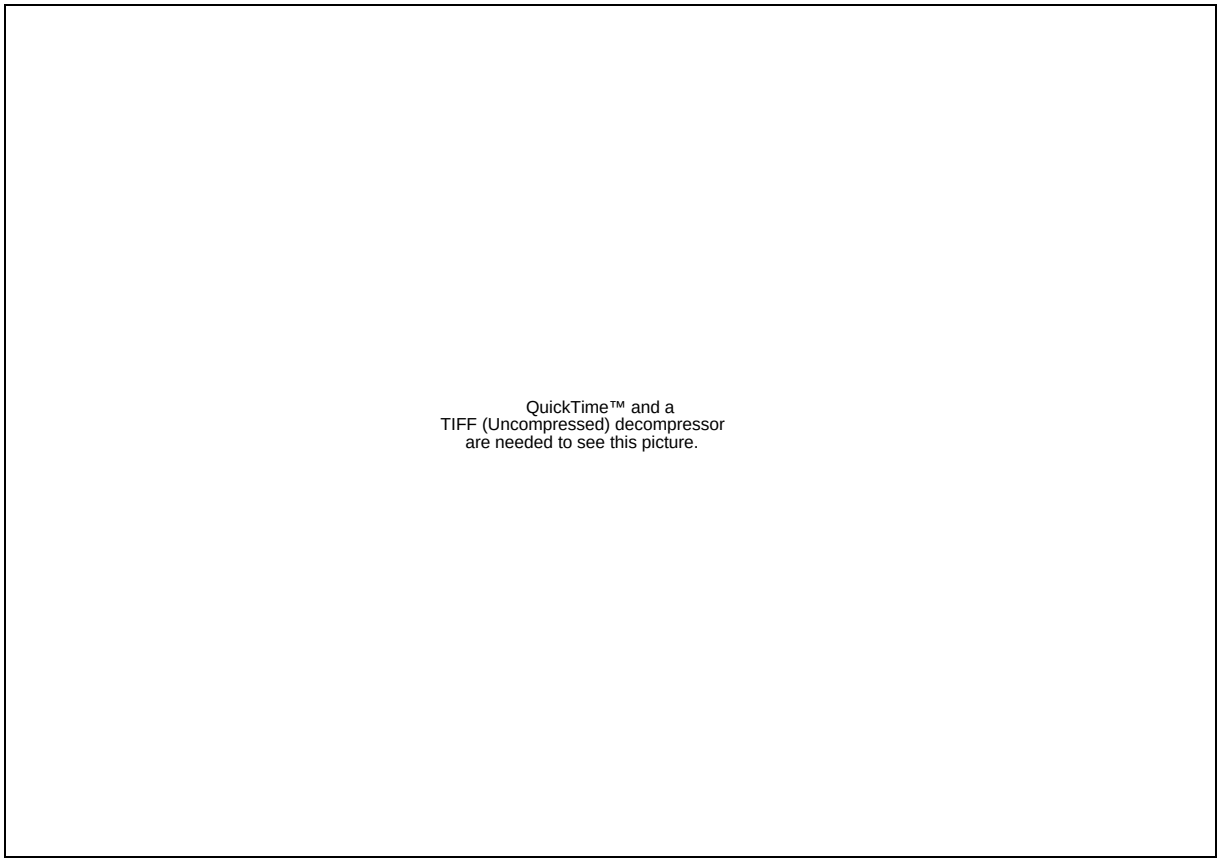

Figure 1. U.S. Ballistic Missile Defense System Elements[16]

The Command and Control, Battle Management and Communications (C2BMC) element is the connectivity backbone of the BMDS. It is the human-machine interface for BMDS that provides integration of the various elements through flow of sensor data, command and control, planning, and engagement processes. It consists of the BMD Planner, Combatant Commander Command and Control, Global Fire Control, and Network. C2BMC systems are online at U.S. Strategic Command (STRATCOM), U.S. Northern Command

[16] Missile Defense Agency, "Global Ballistic Missile Defense," 4.

(NORTHCOM), and U.S. Pacific Command (PACOM) with situational awareness nodes in Washington DC.[17]

NORTH KOREA SCENARIO

Possessing the largest ballistic missile force in the developing world, North Korea's launch of a Taepo Dong 1 (TD1) MRBM in August 1998 was a watershed event for U.S. BMD.[18] While the missile failed to achieve the *stated* objective of placing a satellite into orbit, it did fly approximately 1,000 miles and demonstrated North Korean capability as well as audacity. Not only did this missile fly over Japanese airspace and enrage that country's leadership, the missile's flight trajectory was directly toward the Hawaiian Islands. If it was not an attempted space launch, and the missile had performed correctly, it is assessed the TD1 would have landed within a few hundred miles of the islands. This 'shot across the bow' was the impetus of the U.S. BMDS.

Eight years after the eye-opening TD1 launch, during 5-6 July 2006 (July 4th U.S. time), North Korea conducted another test. A total of seven ballistic missiles were launched in relatively quick succession, including the first (unsuccessful) test of the Taepo Dong 2 (TD2) ICBM. Six of the seven missiles were short and medium-range (Scuds and Nodongs) and were assessed as successful based on their lengths of flight and impact points.[19] While North Korea's long-range missile tests have been less than successful, it has demonstrated a notable capability with short and medium-range missiles of which it has a sizeable inventory.

Inventory estimates of North Korean ballistic missiles are difficult due to the country's continuous information denial and deception. However, it is estimated that they have

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[17] Missile Defense Agency, "Global Ballistic Missile Defense," 8.

[18] Jane's Information Group, "Jane's Sentinel Security Assessment, China and Northeast Asia, Armed Forces, North Korea," 06 September 2007, http://sentinel.janes.com/ (accessed 28 September 2007).

[19] Ibid.

between 1,150-1,350 total missiles with 800-900 in the Korean People's Army (KPA). More worrisome, it is assessed that the KPA can sustain a 54-72 ballistic missile rate-of-fire for a few hours followed by 10-20 missiles per day until inventory depletion.[20] To put this number in perspective, Iraq launched a total of 88 SCUDs during the entire Gulf War and a total of 28 missiles during Operation Iraqi Freedom (OIF).[21] North Korea could exceed all the missiles fired in both Iraqi conflicts in just two days. Despite the fact that North Korea is the rogue nation that has come closest to fielding an operational ICBM capable of reaching the U.S., the true danger lies in Kim Jong-Il's irrational behavior and the significant numbers of short and medium-range missiles he has at his disposal that are capable of striking U.S. deployed forces, allies, and friends today.

From a C2 and defensive system capability, a North Korean TD2 launch towards the U.S. is actually favorable from a BMDS threat perspective. This is the threat for which the system has been constructed. NORTHCOM, as supported commander for defense of the U.S. mainland, would coordinate through the Missile Defense Element at Cheyenne Mountain Operations Center who would order the Fire Direction Center at Fort Greely to launch an interceptor to destroy the incoming threat.[22] However, if the threat to Americans is not in the continental U.S. but to deployed forces, the BMD C2 structure appears less defined

If the same North Korean TD2 was fired at Hawaii, PACOM is the supported commander for defense of the islands.[23] This scenario is still inside U.S Global Missile Defense capability and although the BMD C2 architecture is less defined, it would stand to reason that PACOM would coordinate with NORTHCOM who would take actions to consummate the

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[20] Ibid.

[21] Charles A. Anderson, "Air and Missile Defense: Operation Iraqi Freedom," *Army Magazine*, http://www.ausa.org/webpub/DeptArmyMagazine.nsf/byid/CCRN-6CCSBH/ (accessed 02 October 2007).

[22] George W. Bush, Directive, "Unified Command Plan," (05 May 2006).

[23] Ibid.

engagement with a ground-based interceptor. Time will be more critical in this situation as the response time is decreased due to the shorter time of flight from North Korea to Hawaii. Still within the capability of the BMDS, this could be considered a *tame* problem.

Since North Korea does not possess an ICBM-class missile capable of reaching the U.S. (worst *potential* threat), let us consider a *wicked* problem of an SRBM/MRBM attack on the 100,000 U.S. military, dependents, and Defense Department civilians working on U.S. military bases in Japan (worst *credible* threat).[24] One does not need to attack America to kill Americans. North Korea has sufficient numbers of missiles to inflict significant damage with conventional warheads, and unspeakable damage if Kim Jong-Il employs WMD. As noted above in the July 2006 test, North Korea has demonstrated their ability to coordinate multiple launches in a short timeframe.

The operational commander's first problem in this scenario is answering the question of, "Who is the commander responsible for responding to the threat?" PACOM remains combatant commander but the sub-unified commander of U.S. Forces Japan (USFJ) complicates the problem. USFJ is tasked with developing plans for the defense of Japan and is to assume operational control (OPCON) of assigned and attached U.S. forces to execute those plans.[25] It is also certain that the Japanese would respond to this threat with their Patriot and Aegis BMD systems as they become available. Who is responsible for integrating Japanese responses? The Japanese are likely contemplating the reciprocal question of, "Who is responsible for integrating U.S. responses with Japanese efforts?"

Further complicating the C2 problem is the U.S. elimination of the distinction between

[24] United States Forces Japan, "Welcome to U.S Forces, Japan," http://www.usfj.mil/ (accessed 28 September 2007).
[25] Global Security.org, "U.S. Forces, Japan," http://www.globalsecurity.org/military/agency/dod/usfj.com/ (accessed 08 October 2007).

theater and national missile defenses as outlined in NSPD-23.[26] This distinction was considered outdated and a leftover product of the ABM Treaty. As a result, Joint Theater Missile Defense has been deleted from U.S. Joint Doctrine.[27] Theater and national defenses are considered interchangeable depending on the situation. This is certainly true, but the globalization of BMD by the U.S. has ignored the fact that theater threats remain and the current BMDS is incapable of responding to these threats.

Finally, the operational factors of time and space are the most critical aspects of this hypothetical problem. Depending on launch location in North Korea and target locations in Japan, response time to counter an SRBM/MRBM attack could be as little as five to seven minutes. While Japan is home to a critical element of the BMDS in the forward-based X-band radar in Shariki, the nearest C2BMC terminal to assist in the coordination of missile defense is located almost 4,000 miles away at PACOM. This scenario clearly illustrates that a theater missile defense commander (TMDC) is appropriate and necessary in order to effectively counter a North Korean short/medium-range missile attack on Japan.

The second piece of this difficult scenario is U.S. defensive capabilities to respond to the threat. This problem exceeds the range of U.S.-based GBIs and must be countered with other elements of the BMDS. Under current capabilities, these include Aegis BMD and Patriot missiles. Unfortunately, current inventories of these two systems alone are insufficient to counter a massed, coordinated attack with SRBMs/MRBMs that North Korea is capable of delivering. Additional systems in operation, testing, or development that are crucial to mounting a more effective defense against this type of attack include upgraded Aegis BMD, Theater High-Altitude Air Defense (THAAD), follow-on SM3 Interceptor, and Sea-Based

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[26] *National Policy on Ballistic Missiles Defense, National Security Presidential Directive/NSPD-23.*

[27] Chairman, U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats,* Joint Publication (JP) 3-01 (Washington, DC: CJCS 05 February 2007), iii.

Terminal defense. In his report to the House Strategic Forces Subcommittee, MDA director General Obering stated that the U.S. is, "Moving forward with initial defenses to protect allies and U.S. interests against shorter-range ballistic missiles."[28] However, the additional systems that can help counter the short-range threat receive far less funding than the GMD element designed to counter the yet to be fielded rogue nation ICBM threat. Force structure is beyond the scope of this paper, but the funding allocated to the additional systems *combined* is nearly one-half billion dollars less than the GMD element for FY08.[29] These additional systems' priorities need to be accelerated in order to get them on station in theater to counter this threat. Now consider a similar scenario in Iran.

IRAN SCENARIO

Iran's continual development of chemical and biological weapons, suspected pursuit of nuclear weapons, and strong desire for regional prestige are well known. Though Iranian President Mahmoud Ahmadinejad claims his country's use of nuclear technology is solely for peaceful purposes, U.S. Secretary of State Condoleezza Rice recently stated, "There is an Iranian history of obfuscation and, indeed, lying to the IAEA [International Atomic Energy Agency]."[30] Ahmedinejad's open call for Israel to be "wiped off the map" is another indicator that the U.S. is dealing with a dangerous individual.[31] Combine Iran's nuclear aspiration with one of the largest ballistic missile inventories in the region, and the military threat is significant.

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[28] Obering, "Testimony."
[29] Ibid.
[30] Matthew Lee, "Rice says Iran 'lying' about nukes," *Yahoo.com*, 11 October 2007, http://www.yahoo.com/s/ap/20071011/ap_on_go_ca_st_pe/us_iran/ (accessed 11 October 2007).
[31] Al Jazeera, "Ahmadinejad: Wipe Israel off map," *Al Jazeera.com*, 28 October 2005, http://english.aljazeera.net/English/archive/ArchiveId=15816/ (accessed 10 October 2007).

Iran has imported short and medium-range missiles (primarily Scuds and Nodongs) from Libya, Syria, North Korea, and China by the hundreds. Most notable, Iran reportedly took delivery of 18 MRBM/IRBM BM-25 model missiles from North Korea with an estimated range of at least 2,500km. Additionally, Iran has an indigenous missile production program (Shahab) and has been slowly increasing the range and payload capability of the Shahab-3 MRBM. It is assessed that Iran now has the ability to threaten locations as distant as Israel and Eastern Europe,[32] and that Iran could acquire a long-range missile capable of hitting all of Europe and the U.S. by 2015.[33]

Similar to North Korea, Iran does not posses a ballistic missile with sufficient range to reach the continental U.S. While the intelligence estimate for an ICBM may or may not be accurate, today Iran has significant numbers of short and medium-range missiles capable of striking the large numbers of Americans stationed in the Arabian Gulf region. As with North Korea, exact numbers of Iranian ballistic missiles are difficult to obtain, however, it is assessed that current inventory is between 350-500 short and medium-range ballistic missiles.[34] If a North Korean missile attack on U.S. forces in Japan is a wicked problem, an Iranian attack on U.S. forces in the Arabian Gulf is worse.

Starting with geometry, the possible flight trajectories for an Iranian SRBM/MRBM attack are nearly endless. Unlike North Korea, who would generally fire missiles east towards Japan or south towards South Korea, Iran could fire ballistic missiles any number of directions at Americans in the region. Iraq, Afghanistan, Qatar, Oman, and Saudi Arabia all contain deployed U.S. forces. Combine multiple possible targets with the size of Iran, the

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[32] "Rep. Franks Addresses European Leaders at Missile Defense Conference in Netherlands," *US Fed News Service, Including US State News*, 03 September 2007, http://proquest.umi.com/ (accessed 05 September 2007).
[33] Jane's Information Group, "Jane's Sentinel Security Assessment, The Gulf States, Armed Forces, Iran," 13 September 2007, http://sentinel.janes.com/ (accessed 28 September 2007).
[34] Ibid.

use of Transporter Erector Launchers (TELs) to move and launch missiles, the number of missiles, and the immense difficulties of this problem become apparent.

The command and control piece of this scenario presents a different type of problem than the North Korean scenario. If you discount the uncertainty of BMD C2 created by NSPD-23 and revert to the Unified Command Plan, U.S. Central Command (CENTCOM) is the combatant commander and would presumably be responsible for missile defense. The Gulf War and OIF saw the creation of makeshift missile defense C2 organizations – as a subset of the Combined Forces Air Component Command (CFACC) and Area Air Defense Commander (AADC) – in order to deal with the Iraqi BMD threat. While moderately successful, organizations of this type do not support the BMDS, are not sustainable, would not be effective against a massed Iranian attack, and are not simple.

Similar to North Korea, the same issues of the elimination of joint theater missile defense and coordination with ally nations must be considered for an effective C2 construct. At present, this region lacks any elements of the BMDS with the exception of Patriot missile batteries. There are plans to install a C2BMC at CENTCOM that will facilitate situational awareness and aid in establishing effective BMD C2. The drawback from the current plan is the system will be located in Florida vice in theater.

From the defensive capabilities perspective, there are plans in motion to upgrade and install radars with coverage of Iran and deploy GBIs to Europe as elements of the BMDS.[35] However, these additional elements are intended for defense of the U.S. and Europe. The radars may provide indications and track information of Iranian launches, but these installations will not bring an engagement capability to the Arabian Gulf. As previously

[35] Obering, "Testimony."

mentioned, Patriot missile batteries are available in theater but their radar and engagement window is limited to point defense in the terminal phase for incoming missiles.[36] Therefore, they must be placed close to the defended area. Due to the limited number of Aegis BMD ships with engagement capability, and priority of the potential North Korean long-range threat, Aegis BMD ships currently operate in the Pacific Ocean.

Just as in the North Korea/Japan scenario, additional systems are required in CENTCOM in order to mount an effective defense against an Iranian ballistic missile attack on U.S. deployed forces, allies, and friends. U.S. forces currently have almost no protection. While a number a U.S. allies are developing BMD capabilities, some in conjunction with U.S. efforts, no other country has reached an operational capability commensurate with the U.S.

CONCLUSIONS AND RECOMMENDATIONS

The Threat

As stated in NSPD-23, ballistic missiles are viewed as an attractive option for rogue nations because the, "United States and our allies lack effective defenses against this threat."[37] Referring back to MDA's mission to, "develop an integrated, layered BMDS to defend the United States, its deployed forces, allies, and friends from ballistic missiles of all ranges and in all phases of flight" it could be said the U.S. has completed step one.[38] The BMDS has the ability to defend the homeland, against a long-range missile in the mid-course and terminal phases of flight – the greatest *potential* threat against the U.S. However, as the capabilities and missile inventories of North Korea and Iran clearly indicate, the greatest *credible* threat is from short and medium-range missiles. This paper neither advocates

[36] Missile Defense Agency, Fact Sheet, "Patriot Advanced Capability-3," http://www.mda.mil/mdalink/pdf/pac3meads.pdf/ (accessed 05 September 2007).
[37] *National Policy on Ballistic Missiles Defense, National Security Presidential Directive/NSPD-23.*
[38] Missile Defense Agency, "Global Ballistic Missile Defense," 4.

abandoning progress already made for protection of the U.S., nor reducing the importance of homeland defense. The U.S. now needs to shift focus to protecting our deployed forces, allies, and friends from the immediate short and medium-range missile threat.

Consider the example in Europe. In December 2006, NATO selected an international consortium to begin work on the Alliance's future Active Layered Theater Missile Defense (ALTBMD) capability.[39] The intent of the system is to protect troops, in a specific area, against short and medium-range ballistic missiles. While this is not a national defense, the European Union made a conscious decision to first protect deployed troops before building a European BMD system. Efforts are underway to study integration of the European system into the U.S. BMDS.

Command and Control

The ideal BMD C2 architecture for the U.S. is one that achieves global unity of command in support of homeland defense, while simultaneously giving theater commanders the flexibility to act in defense of their theaters. The U.S. should re-establish joint theater missile defense (JTMD) and assign responsibilities to regional commanders. This building block approach would allow decentralized execution in defense of the theater, while simultaneously providing support to U.S. national BMD. The regional commander would engage a threat originating in his theater if BMDS elements were capable. This would allow protection of the theater while also contributing to a layered defense of the homeland and increasing depth of fire, or the number of engagement opportunities on a missile. If the threat could not be engaged at the theater level and it was a threat to the homeland, the threat would be handed over to the applicable supported commander.

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[39] Ann Roosevelt, "NATO, SAIC, Sign Contract For Theater Missile Defense Test Bed," *Defense Daily International* 7, no. 46 (01 December 2006): 1, http://proquest.umi.com/ (accessed 13 October 2007).

The North Korean scenario represents a special case due to a threat against two sub-unified commanders, USFJ and U.S. Forces Korea (USFK). These two commanders should be designated the TMDC for their respective areas. USFJ is already tasked with the defense of Japan and designated to assume OPCON of forces to execute that mission. USFJ would coordinate with Japanese defenses to ensure economy of force in responding to the threat. This is a key element with limited numbers of defensive systems and it allows USFJ to leverage Japanese assets as well. USFJ would also coordinate prioritization of defended areas to support Japanese interests in the event of a large attack. By assigning a parallel responsibility in South Korea to USFK, in the event of simultaneous attacks on Japan and South Korea, the two sub-unified commanders could coordinate actions between the two regions. Due to the nature of the relationship between the two host nations, this would not occur otherwise. In support of these TMDCs, full C2BMC suites would be required to maximize planning, situational awareness and battle management.

In the case of the Iranian scenario, CENTCOM should be designated the TMDC. Similar to USFJ in Japan, CENTCOM is the best organization to leverage ally nations' assets, to ensure economy of effort, and is well versed in the particular sensitivities of the region. If Iran does develop an ICBM capable of reaching the U.S. in the future, CENTCOM would be the first combatant commander responsible to respond. The C2BMC installation already planned is a key enabler for the TMDC. However, C2BMC installation for CENTCOM should either be shifted to the theater or a dual installation should be considered - one system at CENTCOM headquarters, and one at the Combined Air Operations Center in Qatar.

Numerous C2 organizations have been recommended to address the theater BMD problem including establishing a Joint Forces Missile Defense Component Commander (JFMDCC),

placing the mission under JFACC, establishing a Joint Task Force (JTF), or maintaining the global mission at NORTHCOM or STRATCOM. The problem with the JFMDCC/JFACC/ JTF options is the assumption that a JTF and associated functional component commanders are established. This is not the case in Japan and at some point in the future, it is possible that the U.S. will not have a JTF in the Arabian Gulf. As the nature of a JTF is for a mission with a specific limited objective, the doctrinally temporary nature of this organization is not the ideal long-term solution.[40] Without a C2BMC, this organization would also be more difficult to integrate into the BMDS. Asset management of limited BMD assets was a notable weakness in this type of organization during OIF, when 22 Patriot missiles were fired at nine Iraqi SRBMs due to a lack of integrated C2 to manage target engagements. Lastly, asset allocation is always a point of contention among functional commanders. This could lead to a reduced BMD capability if multi-purpose assets, such as Aegis BMD, are reallocated to a different functional commander.

The global perspective of NORTHCOM or STRATCOM assuming responsibility for all missile defenses is also less than optimal. STRATCOM is tasked with, "Planning, integrating, and coordinating global missile defense operations and support" but how this translates into a true operational role remains unclear.[41] With a single entity responsible for global missile defense, a large-scale attack could simply overwhelm the commander's ability to effectively respond to the threat. Additionally, NORTHCOM or STRATCOM would not have the same regional-specific situational awareness, ability to coordinate with local/host nations, and ability to prioritize defended assets as the TMDCs recommended above. The

[40] Chairman, U.S. Joint Chiefs of Staff, *Unified Action Armed Forces (UNAAF),* Joint Publication (JP) 0-2 (Washington, DC: CJCS 10 July 2001), V-10.
[41] Chairman, U.S. Joint Chiefs of Staff, *Homeland Security,* Joint Publication (JP) 3-26 (Washington, DC: CJCS 02 August 2005), II-10.

optimal C2 solution is utilization of TMDCs and a building block approach in support of national BMD.

Defensive Capabilities

Early BMDS defensive capabilities focused on the greatest potential threat of a long-range, WMD missile attack on the U.S. With a rudimentary homeland defense in place with the GMD element, development of this element should continue but focus should be shifted to other BMDS elements. These elements will decidedly increase the operational commander's ability to counter a short/medium-range missile attack. Currently, this capability is minuscule in the North Korean scenario and non-existent in the Iranian scenario.

While it is beyond the scope of this paper to discuss development of all defensive elements, take Aegis BMD as an illustrative example. Aegis BMD currently uses the SM-3 Block 1A missile to engage missiles in the mid-course phase of flight. With current capabilities, it would take three ships to provide defensive coverage of Japan from a North Korean attack. With the SM-3 Block II missile, currently under development, this task can be accomplished with one ship.[42] By increasing the capability of this single element, more ships would be made available for tasking in other regions, such as the Arabian Gulf, or taking in another warfare area. An additional Aegis BMD capability that has been placed back in development from previous cancellation is Sea-Based Terminal (SBT) defense.[43] Using a variant of the SM-2 missile to engage incoming ballistic missiles in the upper atmosphere will provide an additional terminal phase defense capability. Accelerated procurement of both of these systems would provide significant, mobile BMD capability to an operational commander.

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[42] "Raytheon nears SM-3 Block IIA development," *Jane's Missiles and Rockets*, 01 June 2006, http://www4.janes.com/subscribe/jmr/doc_view.ssp/ (accessed 28 September 2007).
[43] Obering, "Testimony."

With a larger area capability than Patriot, and the ability to engage targets in the endo and exo-atmosphere, THAAD will bring yet another terminal phase defensive capability to the operational commander. THAAD is in final evaluation testing with manufacturing contracts for the first two systems awarded. Planned utilization of THAAD is to have four air-deployable systems available to provide short-notice BMD coverage. MDA should acquire additional systems for long-term deployment in defense of deployed U.S. forces.

The U.S. will have 24 ground-based interceptors in the ground by the end of 2007 with an ultimate target number of 44 - poised to intercept a threat that is – non-existent? The deterrence, domestic and international political capital gained from a national BMDS able to shoot down ICBMs cannot be understated. However, is the deterrent of 44 missiles greater than that of 24? The most urgent missile defense problem lies in the operational commander's inability to counter a short/medium-range missile threat. An effective C2 organization and the deployment of multiple, complimenting BMD defensive capabilities will provide the theater missile defense commander the tools necessary to protect American lives.

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